

A Reinforcement for Multifunctional Composites for Non-Parasitic Radiation Shielding, Phase II

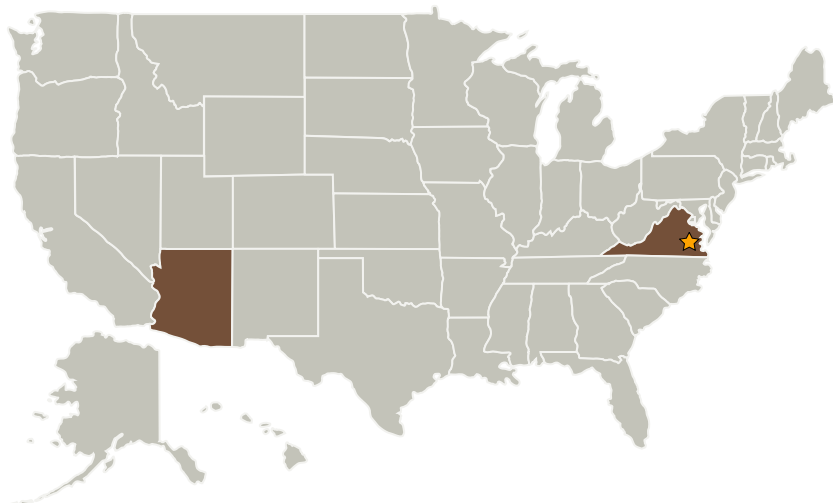
Completed Technology Project (2004 - 2006)



Project Introduction

Radiation shielding is a requirement to protect humans from the hazards of space radiation during NASA missions. Multifunctional materials have the potential to provide both non-parasitic radiation protection and structural requirements. Because of the radiation only low atomic number materials can be used. Boron and carbon meet the radiation requirement and in fibrous form meet the structural requirement. In Phase I it was demonstrated feasible to produce boron fibers on graphite fiber tow substrates. Composites produced with the boron fibers showed modulus increase and high strength compared to graphite fiber composites. Phase II will optimize the processing to maximize the boron fiber properties and the composite properties fabricated from the boron fibers. Continuous production of boron fiber processing and prepregging of the fibers will be demonstrated. The boron fibers produced will be utilized to demonstrate the fabrication of large size composites and delivery of both fibers and composites to NASA.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
MER Corporation	Supporting Organization	Industry	Tucson, Arizona



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Arizona

Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.1 Materials
 - └ TX12.1.1 Lightweight Structural Materials